

Interactive comment on “Representation of the Equatorial Stratopause Semiannual Oscillation in Global Atmospheric Reanalyses” by Yoshio Kawatani et al.

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Text says : "Consequently, the solar diurnal (24-hour) and semidiurnal (12-hour) tides should be eliminated in monthly mean data in each case, but the effect of higher order tides (e.g., 8-hour, 6-hour) could still be present in the monthly means for those reanalyses with 6 hourly instantaneous data. However, the effects of these tides on the zonal mean should be extremely small, at least at altitudes analyzed in this study (up to 1 hPa 5 for all reanalyses comparison and 0.1 hPa for the MERRA vs. MERRA-2 comparison)."

It is clear that there are two semiannual pulses that operate on the hemispheres

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which would lead to a semiannual nodal cycle – see Fig 1 from this presentation from the recent AGU https://presentations.copernicus.org/EGU2020/EGU2020-19821_presentation.pdf

Considering that if this is considered a semi-annual tide, then wouldn't the lunar nodal tide of 13.66 days modulating this tide lead clearly to the 28 month cycle of QBO? See Fig 2. Both the SAO and QBO should show up in global reanalysis

Interactive comment on Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2020-73>, 2020.

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Long timeseries of **zonal-mean GWMF** indicate that this pattern is consistent each year, but variability is found to coincide with Sudden Stratospheric Warming (SSW) events in both hemispheres.

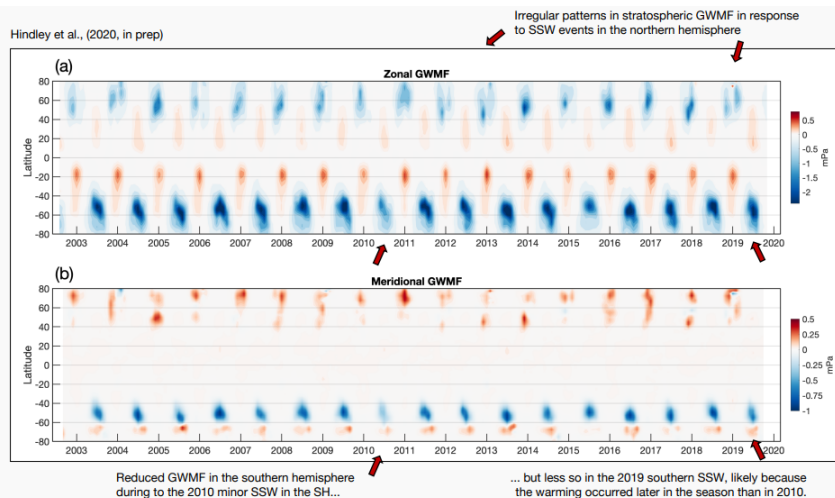


Fig. 1. from <https://doi.org/10.5194/egusphere-egu2020-19821>

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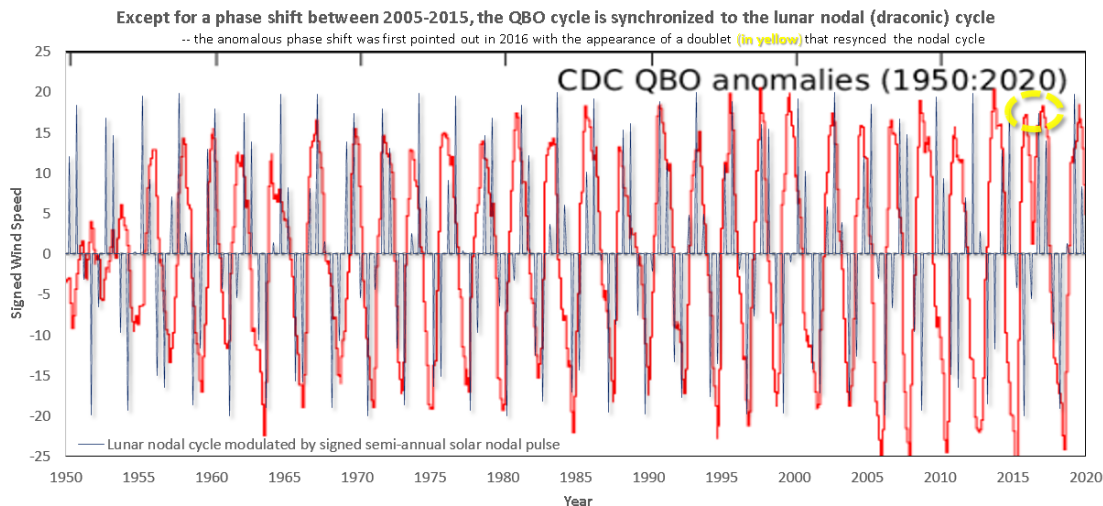


Fig. 2. Lunar nodal cycle modulating solar annual cycle

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